

DISCUSSION OF THE CLAIMS

Claims 1-2, 4-6, and 8-23 are active in the present application. Claims 3 and 7 are canceled claims. Claims 8-15 are presently withdrawn from active prosecution. Independent Claims 1 and 5 are amended to recite species described in the previously presented claims, e.g., Claims 3 and 7. The dependent claims are amended in accordance with the amendment to Claims 1 and 5. Claims 20-23 are new claims. Support for the new claims is found in the previously pending claims.

No new matter is added.

REMARKS

The present Amendment and response includes new and amended claims that were not presented in the Amendment filed on July 13, 2010 but not entered. The argument below include arguments and analysis supplemental to the arguments presented in the July 13, 2010 Amendment.

Applicants thank Examiner Cooney for the helpful and courteous discussion of June 3, 2010. During the discussion Applicants' U.S. representative explained that the examples of the as-filed disclosure are probative of the patentability of the present claims. It was discussed that the evidence showing unexpected results is probative not only for those species explicitly described in the examples but also for homologs and/or obvious variants thereof. The Examiner appeared to be in agreement that the examples of the as-filed disclosure are probative of the non-obviousness of certain species outside those species explicitly described in the original specification. In particular, it was discussed that homologs and/or obvious variants of the species exemplified in the as-filed disclosure would be expected to have similar unexpected results such as those shown for the exemplified species.

Independent Claims 1 and 5 are amended herein to recite particular species for components (A) and (B), and (A) and (C) for Claims 1 and 5, respectively. Applicants submit the examples of the original specification are probative of the non-obviousness of the subject matter of the present claims.

New independent Claims 20 and 22 further define the catalyst compositions of Claims 1 and 5. Each of new Claims 20 and 22 recite quaternary ammonium acetate salts and which contain ammonium groups having only methyl, ethyl or propyl alkyl groups. As pointed out below, the evidence of record proves that tetramethylammonium acetate and tetraethylammonium acetate are homologs of one another with respect to catalytic effects in

polyisocyanate materials. The propyl derivatives are legally homologous with ethyl derivatives because they differ by only one methylene group (see arguments and legal guidance below with respect to homology).

Applicants explained in the Amendment filed on December 22, 2009 that Table 1 of the original specification demonstrates that certain catalyst compositions encompassed by the present claims provide substantially superior catalysis effects (see pages 9-11 of Applicants' December 22, 2009 Amendment). The Office appears to have acknowledged that the examples of the as-filed disclosure demonstrate effects that may be characterized as "new or unexpected" (see the last paragraph on page 6 of the April 21, 2010 Office Action).

Applicants submit that the unexpected results pertaining to tetramethylammonium acetate are probative of the non-obviousness of the other quaternary ammonium salts of component (A) of present Claims 1 and 5. In particular the other species now recited in the claims are closely structurally related to the exemplified species.

The Office's policy on homologs is well-explained in the MPEP, see for example, sections 2144.09 and 2144.08. Applicants submit that homologs of the tetramethylammonium acetate-containing compositions described in the as-filed disclosure and/or obvious variants thereof should likewise provide significantly improved catalysis effects in comparison to those catalyst compositions of, for example, Table 2 which do not adhere to the present claim limitations.

Applicants draw the Office's attention to MPEP § 2144.09 for guidance with respect to the legal requirements in regard to the characteristics of homology and how such homology is reflected in the factual evidence of the present case. For example, in new Claims 20 and 22 the ammonium group differs only by the successive addition of methylene groups (i.e., groups of formula $-\text{CH}_2-$). MPEP provides the following guidance:

Compounds which are ... homologs (compounds differing regularly by successive addition of the same chemical group, e.g., by $-CH_2-$ groups) are generally of sufficiently close structural similarity that there is a presumed expectation that such compounds possess similar properties. (Citations omitted.)

Examples 4 and 5 of the present specification demonstrate that tetramethylammonium acetate and tetraethylammonium acetate are in fact homologs. Example 4 includes tetramethylammonium acetate (see Table 1 and the footnotes to Table 1 on page 29 of the specification) whereas Example 5 includes tetramethylammonium acetate. Although Examples 4 and 5 include different blowing agents, i.e., cyclopentane and pentafluorobutane, respectively, the compositions are otherwise the same in components (A) and (B).

Applicants submit that those of skill in the art readily recognize that cyclopentane and pentafluorobutane are inert materials that do not participate in the polymerization isocyanate. The blowing agent likewise does not participate in any catalytic effect between the catalyst and the isocyanate. The blowing agent may have an effect on physical properties of the resultant foam such as heat conductivity and/or insulation characteristics, however, these properties do not relate to any change in the reaction occurring when the polyisocyanate is formed and do not relate to any change in catalytic behavior.

It is readily evident from the properties of the foam produced in inventive Examples 4 and 5 that the foams are essentially the same with only minor variation in properties such as density, flowability, stability and adhesive strength. Importantly, the initial reactivity and reactivity after storage, properties that are directly related to the performance of the catalysts in the polyisocyanate, are the same for compositions that include tetramethylammonium acetate and tetraethylammonium acetate.

Applicants thus submit that the original specification includes sufficient factual evidence demonstrating that tetramethylammonium acetate and tetraethylammonium acetate are homologs of one another.

Applicants further submit that the evidence directly addresses the Office's comment on the continuation page with respect to paragraph no. 11 of the July 29, 2010 Advisory Action. Inventive Examples 4 and 5 are back-to-back demonstrations.

Applicants have demonstrated in the original specification that tetramethylammonium acetate and tetraethylammonium acetate materials are homologous, that is, such ammonium compounds provide the same or essentially the same catalytic effect relative to one another. The evidence of record in combination with the legal principles described in the MPEP should thus be sufficient for the Office to reach a determination of patentability of the present claims.

As acknowledged by the Office, Applicants provided a showing which the Office acknowledged represented "new or unexpected" results (see the paragraph bridging pages 6 and 7 of the April 21, 2010 Office Action). The evidence should thus be treated as probative of the non-obviousness of the presently claimed invention.

Likewise with respect to component (B) of Claim 1, i.e., a hydrophobic amine compound, Applicants submit that homologs and/or obvious variants of the N,N-dimethyldodecylamine exemplified in the examples of the as-filed disclosure should benefit from the probative effect of the examples of the original specification. For example, homologs of N,N-dimethyldodecylamine including structural relatives which differ by only a few carbon atoms in a hydrocarbon chain should be found allowable in view of the evidence for the N,N-dimethyldodecylamine-containing compositions exemplified in the as-filed disclosure. See new Claims 20 and 21 in this regard.

The same logic applies to the probative effect of the examples corresponding to the subject matter of Claim 5, i.e., catalysis compositions containing a heterocyclic tertiary amine compound. Where the examples of the as-filed disclosure may demonstrate substantially improved catalysis performance with a particular material such as 1,2-dimethylimidazole, Applicants submit that homologs and/or obvious variants of the compositions explicitly described in the original examples should likewise benefit from such probative evidence.

Applicants thus submit that the evidence of record is probative of the patentability of not only those compositions which include the particular species described in the as-filed disclosure, but is also probative of homologs and/or obvious variants and/or combinations thereof.

Applicants respectfully request the Office allow the presently pending active claims.

REQUEST FOR REJOINDER

Each of the presently withdrawn claims is directly or indirectly dependent from Claim 1 or Claim 5. Should the Office find allowable subject matter in Claims 1 and/or 5 Applicants respectfully request rejoinder and allowance of the presently withdrawn claims.

35 U.S.C. § 112

In the July 13 Amendment Applicants showed how the amounts described in Claims 17-19 find explicit support in the as-found disclosure. In the July 29 Advisory Action, the Office appears to have maintained its rejection of the claims for failing to comply with the written description requirement.

The test for meeting the written description requirement is well-established; namely, whether Applicants describe the claimed invention in sufficient detail such that those of

ordinary skill in the art would readily recognize that Applicants were in possession of the claimed subject matter at the time the application was filed.

Here the original specification includes sufficient disclosure that would permit those of skill in the art to determine that Applicants described that the components of the claimed catalytic composition, e.g., components (A) and (B), can be used in varying relative amounts irrespective of the exact identity of either of component (A) or (B). This disclosure includes the examples of the original specification in which different species of components (A) and (B) are used in different relative ratios thus supporting the relative ratios now-recited in Claims 17-19.

As argued in the July 13 Amendment, Applicants submit that the particular weight ratios recited in Claims 17 and 19 are explicitly described in the original specification. For example, with regard to Claim 17, values such as “2.4” represent the actual amount of the particular component (A). This particular amount is obtained by taking into consideration the concentration of the component used in the examples. Component (A) corresponds with footnotes 4-6 on pages 28 and 32 of the specification. In each of the footnotes, it is made clear that the quaternary ammonium salt (A) is used as a 50% solution. For this reason, the value “4.8” of Example 6 in Table 1 on page 28 of the specification provides explicit support for the value “2.4” which is recited in Claim 17 (i.e., $4.8 \text{ parts} \times 50\% = 2.4 \text{ parts}$). The same logic applies for each of the other components of Claims 17 and 19 which are described in the Tables and in subsequent pages in footnotes providing the concentration of the materials actually used in the examples.

Applicants thus submit that Claims 17 and 19 include subject matter sufficiently described in the as-filed disclosure for those of ordinary skill in the art to recognize that Applicants were in possession of the claimed subject matter at the time the application was filed.

For the reasons discussed above in detail, Applicants respectfully request withdrawal of the rejection and an indication of allowable subject matter.

Respectfully submitted,

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